Claims

1. Printing machine having at least one machine element (08) that can be adjusted by a correcting element (07), wherein an adjustment of the at least one machine element (08) affects a quality of a printing performed by the printing machine, wherein an optical detection device (11) having a sensor that is directed toward a surface of a printing substrate printed in the printing machine detects the quality of the printing during the transport of the printing substrate through the printing machine, and wherein a control device (12) that receives data from the optical detection device (11) uses a correcting element (07) to adjust the at least one machine element (08) based upon a difference between a quality of the printing that is preset as the target value and the quality of the printing that is detected by the optical detection device (11) as the actual value, in a manner that serves to minimize the difference between the target value and the actual value, characterized in that the at least one machine element (08) is a temperature-control device for controlling the temperature of at least a part of a circumferential surface of a rotational body of the printing machine, wherein the rotational body is involved in transporting a printing ink to the printing substrate that is printed with the ink in the printing machine.

2. Printing machine having at least one machine element (08) that can be adjusted by a correcting element (07), wherein an adjustment of the at least one machine element (08) affects a quality of a printing performed by the printing machine, wherein an optical detection device (11) having a sensor that is directed toward a surface of a printing substrate printed in the printing machine detects the quality of the printing during the transport of the printing substrate through the printing machine, and wherein a control device (12) that receives data from the optical detection device (11) uses a setting element (07) to adjust the at least one machine element (08) based upon a difference between a quality of the printing that is preset as the target value and the quality of the printing that is detected by the optical detection device as the actual value, in a manner that serves to minimize the difference between the target value and the actual value, characterized in that the correcting element (07) is a servo drive for adjusting an inclination of a forme cylinder (08) arranged in the printing machine, relative to the printing substrate.

3. Printing machine having at least one machine element (08) that can be adjusted by a correcting element (07), wherein an adjustment of the at least one machine element (08) affects a quality of a printing performed by the printing machine, wherein an optical detection device (11) having a sensor that is directed toward a surface of a printing

substrate printed in the printing machine detects the quality of the printing during the transport of the printing substrate through the printing machine, and wherein a control device (12) that receives data from the optical detection device (11) uses a correcting element (07) to adjust the at least one machine element (08) based upon a difference between a quality of the printing that is preset as the target value and the quality of the printing that is detected by the optical detection device as the actual value, in a manner that serves to minimize the difference between the target value and the actual value, characterized in that when multiple inks are printed onto the same printing substrate, the correcting element (07) adjusts the tack value of each of the printed inks differently.

4. Printing machine having at least one machine element (08) that can be adjusted by a correcting element (07), wherein an adjustment of the at least one machine element (08) affects a quality of a printing performed by the printing machine, wherein an optical detection device (11) having a sensor that is directed toward a surface of a printing substrate printed in the printing machine detects the quality of the printing during the transport of the printing substrate through the printing machine, and wherein a control device (12) that receives data from the optical detection device (11) uses a correcting element (07) to adjust the at least one machine element (08) based upon a difference between a quality of the printing that is preset as the target value and the quality of the printing that is detected by the optical detection device as the actual value, in a manner that serves to minimize the difference between the target value and the actual value, characterized in that when a difference between the target value and the actual value is identified, the control device (12) determines a change in spacing between two marks or measurement fields, which are arranged crosswise relative to the direction of transport of the printing substrate and are incongruent at least in their respective positions, wherein the optical detection device (11) simultaneously detects the two marks or measurement fields, which are both assigned to the same color patch, wherein the control device (12) uses the correcting element (07) to adjust the at least one machine element (08) based upon the determined change in said spacing.

5. Printing machine having at least one machine element (08) that can be adjusted by a correcting element (07), wherein an adjustment of the at least one machine element (08) affects a quality of a printing performed by the printing machine, wherein an optical detection device (11) having a sensor that is directed toward a surface of a printing substrate printed in the printing machine detects the quality of the printing during the transport of the printing substrate through the printing machine, and wherein a control device (12) that receives data from the optical detection device (11) uses a correcting element (07) to adjust the at least one machine element (08) based upon a difference

between a quality of the printing that is preset as the target value and the quality of the printing that is detected by the optical detection device as the actual value, in a manner that serves to minimize the difference between the target value and the actual value, characterized in that the machine element (08) is a metering device for an inking unit (13) designed to meter a quantity of printing ink to be transferred onto the printing substrate.

6. Printing machine according to one of claims 2 through 5, characterized in that the machine element (08) or another machine element (08) is a temperature-control device for controlling the temperature of at least a part of a circumferential surface of a rotational body of the printing machine, wherein the rotational body is involved in the transport of a printing ink onto the printing substrate printed with the ink in the printing machine.

7. Printing machine according to one of claims 1 or 3 through 5, characterized in that the correcting element (07) or another correcting element (07) is a servo drive for adjusting an inclination of a forme cylinder (08) arranged in the printing machine, relative to the printing substrate.

8. Printing machine according to one of claims 1, 2, 4 or 5, characterized in that when multiple inks are being printed onto the same printing substrate, the correcting element (07) or another correcting element (07) adjusts the tack value of each of the printed inks differently.

9. Printing machine according to one of claims 1, 2, 3 or 5, characterized in that when a difference between the target value and the actual value is identified, the control device (12) determines a change in spacing between two marks or measurement fields, which are arranged crosswise to the direction of transport of the printing substrate and are incongruent in their spacing or at least in their respective positions, wherein the optical detection device (11) simultaneously detects the two marks or measurement fields, which are allocated to the same color patch, wherein the control device (12) uses the correcting element (07) to adjust the at least one machine element (08) based upon the determined change in spacing.

10. Printing machine according to one of claims 1 through 4, characterized in that the machine element (08) or another machine element (08) is a metering device for an inking unit (13) designed to meter a quantity of the printing ink to be transferred onto the printing substrate.

11. Printing machine according to claim 1 or 6, characterized in that the temperature-control device performs the temperature control using a gaseous and/or a liquid temperature-control medium.

12. Printing machine according to claim 1 or 6, characterized in that the temperature-control device keeps the temperature of the ink to be transferred onto the printing substrate within a range of between 20° C and 40° C.

13. Printing machine according to claim 1 or 6, characterized in that the temperature-control device influences at least one rheological property of the printing ink.

14. Printing machine according to claim 1 or 6, characterized in that the rheological property of the ink is its viscosity or tack.

15. Printing machine according to claim 1 or 6, characterized in that within a temperature range of 20° C to 40° C the temperature-control device holds the viscosity of the ink to a value between 1 and 150 Pa*s.

16. Printing machine according to claim 1 or 6, characterized in that within a temperature range of 20° C to 40° C the temperature-control device holds the tack of the ink to a tack value of between 6 and 9.5.

17. Printing machine according to claim 1 or 6, characterized in that within a temperature range of 20° C to 40° C the temperature-control device keeps the tack of the ink at a nearly constant tack value.

18. Printing machine according to claim 1 or 6, characterized in that for a production speed of the printing machine of 3 m/s to 16 m/s, the temperature-control device holds the tack of the ink to a tack value of between 4 and 12.

19. Printing machine according to claim 1 or 6, characterized in that for a production speed of the printing machine of 3 m/s to 16 m/s, the temperature-control device keeps the tack of the ink at a nearly constant tack value.

20. Printing machine according to claim 1 or 6, characterized in that when multiple inks are being printed onto the same printing substrate, the temperature-control device adjusts the tack value of the printed inks differently.

21. Printing machine according to one of claims 1 through 5, characterized in that a printed image printed onto the printing substrate is comprised of multiple color patches.

22. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) is designed as an inline inspection system that inspects the printing substrate as it is transported through the printing machine.

23. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects the acceptance of at least one printing ink being used in the printing onto the printing substrate printed in the printing machine.

24. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects at least one physical characteristic of at least one printed ink.

25. Printing machine according to claim 24, characterized in that the physical characteristic of the ink is its hue.

26. Printing machine according to claim 24, characterized in that the physical characteristic of the ink is a coating thickness of its halftone dots that are applied to the printing substrate.

27. Printing machine according to claim 24, characterized in that the physical characteristic of the ink is a shape of its halftone dots applied to the printing substrate.

28. Printing machine according to claim 24, characterized in that the physical characteristic of the ink is an arrangement of its halftone dots applied to the printing substrate.

29. Printing machine according to claim 28, characterized in that the arrangement is a relative positioning of the halftone dots to halftone dots of at least one other ink being used in the printing.

30. Printing machine according to claim 24, characterized in that the physical property of the ink is a surface distribution of its halftone dots applied to the printing substrate.

31. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects a screen angle of the halftone dots of the color patches involved in the printing.

32. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects an optical density of the ink applied to the printing substrate.

33. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) uses spectral photometry to detect the hue of the ink applied to the printing substrate.

34. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects a position of at least one halftone dot of an ink being used in the printing relative to a position of at least one halftone dot of at least one other ink being used in the printing.

35. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects a position of at least one halftone dot of an ink being used in the printing relative to a printed image printed onto the printing substrate.

36. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects a position of the printed image printed onto the printing substrate relative to a reference edge or a reference line of the printing substrate.

37. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects printed images printed on opposite sides of the same printing substrate and their positions relative to one another.

38. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects a physical characteristic of the printing substrate being printed on in the printing machine.

39. Printing machine according to claim 38, characterized in that the physical characteristic of the printing substrate is a property that relates to its printability or its runability.

40. Printing machine according to claim 38, characterized in that the physical characteristic of the printing substrate is a wet stretching and/or a mechanical stretching of its surface, crosswise and/or lengthwise in its direction of transport through the printing machine.

41. Printing machine according to claim 38, characterized in that the physical characteristic of the printing substrate is a quantity of coating applied to its surface.

42. Printing machine according to claim 38, characterized in that the physical characteristic of the printing substrate is a degree of brightness of its surface.

43. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects an optical property of a quantity of coating applied to the surface of the printing substrate.

44. Printing machine according to one of claims 1 through 5, characterized in that the printing substrate is a sheet or a web of material.

45. Printing machine according to one of claims 1 through 5, characterized in that the printing machine is designed as an offset printing machine.

46. Printing machine according to one of claims 1 through 5, characterized in that the printing machine prints using a waterless offset printing process.

47. Printing machine according to one of claims 1 through 5, characterized in that the printing machine is designed as a sheet-fed printing machine.

48. Printing machine according to one of claims 1 through 5, characterized in that the printing machine is designed as a web-fed printing machine.

49. Printing machine according to one of claims 1 through 5, characterized in that multiple printing couples (01), each of which prints on the same printing substrate using one ink, are provided.

50. Printing machine according to claim 49, characterized in that the inks printed onto the same printing substrate by at least two printing couples (01) have hues that differ from one another.

51. Printing machine according to claim 49, characterized in that the inks printed onto the same printing substrate by at least two printing couples (01)
have tack values that differ from one another.

52. Printing machine according to claim 49, characterized in that each printing couple (01) has at least one temperature-control device for controlling the temperature of at least a part of the circumferential surface of at least one rotational body of the printing couple.

53. Printing machine according to claim 49, characterized in that each temperature-control device can be adjusted independently of another temperature-control device in the same or in a different printing couple (01).

54. Printing machine according to one of claims 1 through 5, characterized in that, when multiple inks are printed onto the same printing substrate, the tack values of the printed inks continuously decrease from the first to the last printed ink.

55. Printing machine according to one of claims 1 through 5, characterized in that at least one forme cylinder (08) and one impression cylinder (16) are provided, wherein the forme cylinder (08) has a position-controlled drive that can be controlled independently of a drive of the impression cylinder (16).

56. Printing machine according to claim 1 or 6, characterized in that the temperature-controlled rotational body is designed as a forme cylinder (08) or as an anilox roller in an inking unit (13) that applies ink to the forme cylinder (08).

57. Printing machine according to one of claims 1 through 5, characterized in that, in order to compare a systematically occurring difference between the target value and the actual value, the optical detection device (11) or the control device (12) transmits a signal (s) to an imaging device for imaging a printing forme that prints a color patch.

58. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects at least one mark that is assigned to one color patch.

59. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) simultaneously detects two marks that are assigned to one color patch and are spaced from one another crosswise to the direction of transport of the printing substrate.

60. Printing machine according to claim 58, characterized in that the mark is designed as a micromark having a width of at most 0.2 mm.

61. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects at least one measurement field that is allocated to one color patch.

62. Printing machine according to claim 61, characterized in that the measurement field is a section of a color patch.

63. Printing machine according to claim 61, characterized in that the measurement field contains halftone dots of at least one ink.

64. Printing machine according to claim 61, characterized in that the measurement field is designed as a measurement strip.

65. Printing machine according to claim 61, characterized in that in each case the optical detection device (11) detects a position of two measurement fields that are assigned to one color patch and are incongruent crosswise to the direction of transport of the printing substrate.

66. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects in its entirety at least one width of one color patch extending crosswise to the direction of transport.

67. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) detects a width of the printing substrate that extends crosswise to the direction of transport.

68. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) is arranged downstream from the last printing couple (01) in the direction of transport of the printing substrate.

69. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) is arranged upstream from a device for turning the printing substrate.

70. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) has multiple sensors.

71. Printing machine according to one of claims 1 through 5, characterized in that the sensor senses multiple hues.

72. Printing machine according to one of claims 1 through 5, characterized in that the sensor is designed as a photodiode or as an image sensor.

73. Printing machine according to one of claims 1 through 5, characterized in that the sensor is designed as a CCD chip or as a CMOS chip.

74. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) has a line camera or a surface camera.

75. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) has an illumination device (18).

76. Printing machine according to claim 75, characterized in that the illumination device (18) emits continuous or pulsed light.

77. Printing machine according to claim 75, characterized in that the illumination device (18) is designed as a cold-light source.

78. Printing machine according to claim 75, characterized in that the illumination device (18) is equipped with multiple light-emitting diodes or laser diodes as the light source.

79. Printing machine according to claim 75, characterized in that the illumination device (18) has a cooling device.

80. Printing machine according to claim 79, characterized in that the cooling device cools the light source using a gaseous or liquid coolant.

81. Printing machine according to claim 75, characterized in that the illumination device (18) is comprised of multiple modules that can be lined up in rows.

82. Printing machine according to claim 75, characterized in that the illumination device (18) is positioned at a distance of between 30 mm and 200 mm from the surface of the printed printing substrate.

83. Printing machine according to claim 5 or 10, characterized in that the metering device has multiple zones in the axial direction of the forme cylinder (08), wherein the metering of the printing ink to be transferred onto the printing substrate can be adjusted differently in different zones.

84. Printing machine according to claim 5 or 10, characterized in that the metering device meters a quantity of ink to be transferred onto the printing substrate by adjusting its coating thickness and/or its duration of application.

85. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) or another correcting element (07) is a servo mechanism for adjusting a contact pressure, wherein a roller of the inking unit (13) or a roller of a dampening unit (17) that transfers a dampening agent onto the forme cylinder (08) exerts the contact pressure on the forme cylinder (08) or on a respective other roller of the inking unit (13) or the dampening unit (17).

86. Printing machine according to one of claims 1 through 5, characterized in that an inking unit (13) and/or a dampening unit (17) are provided, wherein at least two rollers of the inking unit (13) or the dampening unit (17) each have a drive that can be controlled independently of the other, wherein a control device is provided as the correcting element (07) or as another correcting element (07), wherein the control device controls a relative speed between the rollers that are actuated independently of one another.

87. Printing machine according to claim 86, characterized in that the control device changes the relative speed between the rollers of the dampening unit (17) for metering the quantity of dampening agent transferred onto the forme cylinder (08), based upon the quantity of the quantity of ink transferred by the inking unit (13) onto the forme cylinder (08).

88. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) or another correcting element (07) is a servo mechanism for the axial adjustment of the forme cylinder (08).

89. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) or another correcting element (07) is a servo mechanism for the axial adjustment of at least one printing forme arranged on the forme cylinder (08).

90. Printing machine according to claim 89, characterized in that the servo mechanism for the axial adjustment of at least one printing forme arranged on the forme cylinder (08) adjusts said printing forme relative to at least one other printing forme arranged on the same forme cylinder (08).

91. Printing machine according to claim 88 or 89, characterized in that the servo mechanism for the axial adjustment of the forme cylinder (08) or the servo mechanism for the axial adjustment of at least one printing forme arranged on the forme cylinder (08) adjusts said printing forme arranged on the forme cylinder (08) relative to a printing forme on another forme cylinder (08) arranged in the same printing machine.

92. Printing machine according to claim 2 or 7, characterized in that at least one axial end of the forme cylinder (08) is seated in an eccentrically adjustable bearing, wherein to adjust the inclination of the forme cylinder (08), the servo drive eccentrically adjusts the seating of said cylinder in the at least one eccentrically adjustable bearing relative to the seating in the bearing that holds the other end of the forme cylinder (08).

93. Printing machine according to claim 92, characterized in that at least one bearing of the forme cylinder (08) is designed as an eccentric bushing.

94. Printing machine according to claim 2 or 7, characterized in that, to adjust the inclination of the forme cylinder (08), the servo drive shifts said cylinder centrosymmetrically relative to an axis that is oriented vertically on the surface of the printing substrate.

95. Printing machine according to one of claims 1 through 5, characterized in that the machine element (08) or another machine element (08) is an image corrector that at least partially compensates for a lateral strain on the printing substrate.

96. Printing machine according to claim 95, characterized in that the image corrector has reels or blowing nozzles that act upon the surface of the printing substrate.

97. Printing machine according to claim 95, characterized in that the image corrector is arranged between two printing couples (01) in the direction of transport of the printing substrate, close in front of the printing couple (01) that subsequently prints on the printing substrate.

98. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) implements the process of adjusting the at least one machine element (08) continuously during the printing.

99. Printing machine according to one of claims 1 through 5, characterized in that the target value of the quality of the printing is derived from data from a prepress stored prior to the printing.

100. Printing machine according to one of claims 1 through 5, characterized in that the target value of the quality of the printing is taken from a reference printing substrate that is transported through the printing machine prior to the printing.

101. Printing machine according to one of claims 1 through 5, characterized in that the target value of the quality of the printing is taken from data input into the control device (12) via at least one input element prior to the printing.

102. Printing machine according to claim 101, characterized in that the input of the data establishing the target value is the recall of a selection of a quantity of data.

103. Printing machine according to one of claims 1 through 5, characterized in that at least one actual value for printing substrate previously printed on in the printing machine forms the target value for printing substrate subsequently printed on in the printing machine.

104. Printing machine according to one of claims 1 through 5, characterized in that a mean value from multiple actual values for printing substrate previously printed on in the printing machine forms the target value for printing substrate subsequently printed on in the printing machine.

105. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) displays the difference between the target value and the actual value on a display device.

106. Printing machine according to one of claims 1 through 5, characterized in that, in the event of a difference between the target value and the actual value, the control device (12) emits an acoustic and/or an optical warning signal.

107. Printing machine according to one of claims 1 through 5, characterized in that the control device registers and records the difference between the target value and the actual value.

108. Printing machine according to one of claims 1 through 5, characterized in that, in the event of a difference between the target value and the actual value, the control device (12) uses the correcting element (07) to adjust the at least one machine element (08) in a manner that serves to minimize said difference, only with a release from an operator.

109. Printing machine according to one of claims 1 through 5, characterized in that, in the event of a difference between the target value and the actual value, the control device (12) uses the correcting element (07) to automatically adjust the at least one machine element (08) in a manner that serves to minimize said difference.

110. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) uses the correcting element (07) to adjust the at least one machine (08) only when the difference between the target value and the actual value reaches or exceeds a preset threshold value.

111. Printing machine according to claim 110, characterized in that the threshold value is a permissible tolerance of 10% from the threshold value.

112. Printing machine according to claim 110, characterized in that the threshold value is a permissible position deviation of the halftone dots of less than 10 μm from the target value.

113. Printing machine according to claim 110, characterized in that the threshold value is a permissible color deviation of $\Delta E \geq 3$ from the target value.

114. Printing machine according to claim 110, characterized in that the threshold value is a permissible deviation in the optical density of $\Delta D > 0.02$ from the target value.

115. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) is integrated into a control center that is a component of the printing machine.

116. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) is designed as an electric, a hydraulic or a pneumatic drive.

117. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) is electrically actuated.

118. Printing machine according to one of claims 1 through 5, characterized in that multiple adjustable machine elements (08) are provided, wherein each adjustable machine element (08) is equipped with a correcting element (07).

119. Printing machine according to claim 118, characterized in that the correcting elements (07) of different machine elements (08) can be adjusted independently of one another by the control device (12).

120. Printing machine according to one of claims 1 through 5, characterized in that at least the optical detection device (11), the control device (12) and the correcting element (07) are connected to a common data bus.

121. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) controls at least one guide element arranged in the printing machine and intended for guiding the printing substrate during its transport through the printing machine, or regulates said guide element via a correcting element (07), based upon the data provided by the optical detection device (11).

122. Printing machine according to claim 121, characterized in that the control device (12) controls the guide element via a correcting element (07) for centering the printing substrate.

123. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) transmits a signal (s) to a control device, based upon the data provided by the optical detection device (11), for the purpose of controlling a folding unit (22).

124. Printing device according to claim 123, characterized in that the control device (12) controls a cutting cylinder of the folding unit (22) via the control device of the folding unit (22).

125. Printing machine according to claim 124, characterized in that the cutting cylinder cuts or perforates a printed substrate, designed as a web of material, crosswise to its direction of transport, based upon the position of the printed image.

126. Printing machine according to one of claims 1 through 5, characterized in that, based upon the data provided by the optical detection device (11), the control device (12) positions a cutting device or a perforating device in a position that can be varied, crosswise to the direction of transport of the printed substrate, based upon the position of the printed image identified by the optical detection device (11).

127. Printing machine according to claim 123 or 126, characterized in that, based upon the position of the printed image identified by the optical detection device (11), the control device (12) controls or regulates a cut-off register for a trimming of the printing substrate.

128. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) controls or regulates a ribbon register prior to a trimming of the printing substrate, based upon the position of the printed image identified by the optical detection device (11).

129. Printing machine according to one of claims 1 through 5, characterized in that the printing substrate has multiple partial webs running adjacent to one another, crosswise to its direction of transport, wherein the control device (12) utilizes the signal (s) that it emits to alter the respective position of one or more register rollers, each of which guides one of the partial webs, whereby the respective web length of at least one of the partial webs changes in relation to another partial web.

130. Printing machine according to claim 129, characterized in that the same cutting device or perforation device cuts or perforates the partial webs that correlate with one another.

131. Printing machine according to claim 128, characterized in that multiple webs or partial webs of the printing substrate, each of which has been printed with an image, are assembled and stacked to form a ribbon prior to reaching the cutting device or perforation device, wherein the control device (12), to control or regulate the ribbon register, alters the phase position or the angular position between the forme cylinder (08) and/or the transfer cylinder (14) involved in the printing of the individual webs or partial webs of the ribbon, relative to one another, so that the positions of the images printed on the individual webs or partial webs of the ribbon change relative to one another.

132. Printing machine according to claim 126, 130 or 131, characterized in that the cutting device or perforation device is arranged in the folding unit (22).

133. Printing machine according to claim 126, 130 or 131, characterized in that the control device (12) controls or regulates a phase position or an angular position of a cutting cylinder relative to the position of the printed image identified by the optical detection device (11).

134. Printing machine according to one of claims 1 through 5, characterized in that, in the event of a difference between the target value and the actual value, the control device (12) analyzes the data from the optical detection device (11) with respect to the interfering factor causing the difference, its temporal behavior and/or its surface effect on the printing.

135. Printing machine according to one of claims 1 through 5, characterized in that at least one machine element (08) that acts upon the mechanical technology and at least one machine element that acts upon the properties of the material involved in the printing, especially the ink, are both provided, wherein, in the event of a difference between the target value and the actual value, the control device (12) utilizes the differently acting machine elements (08) based upon the necessity determined from the data collected by the optical detection device (11).

136. Printing machine according to one of claims 1 through 5, characterized in that, in the event of a difference between the target value and the actual value, the control device (12) induces multiple correcting elements (07) and/or machine elements (08) to a joint, coordinated, synergetic reaction on the interfering factor causing the difference.

137. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) is electronic in design and operates at a high process speed.

138. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) evaluates different interfering factors identified from the data from the optical detection device (11) in parallel process branches.

139. Printing machine according to one of claims 1 through 5, characterized in that a tear or a hole in the printing substrate can be identified from the data from the optical detection device (11).

140. Printing machine according to claim 139, characterized in that the control device (12) identifies a tear in the printing substrate from a significant deviation of a relevant scanned printed image from its expected position.

141. Printing machine according to claim 140, characterized in that the significant deviation in the position of the printed image consists in exceeding a preset threshold value.

142. Printing machine according to one of claims 1 through 5, characterized in that, when a paper web break is identified, the control device (12) uses a signal (s) to control a web intercept device, based upon the data provided by the optical detection device (11).

143. Printing machine according to one of claims 1 through 5, characterized in that, when a paper web break is identified, the control device (12) uses a signal (s) to control a web severing device, based upon the data provided by the optical detection device (11).

144. Printing machine according to one of claims 1 through 5, characterized in that, when a serious interference in the production being implemented with the printing machine is identified, the control device (12) shuts down the printing machine based upon the data provided by the optical detection device (11).

145. Printing machine according to claim 144, characterized in that the serious interference is a tear in the printing substrate.

146. Printing machine according to claim 55, characterized in that a transfer cylinder (14) that operates in conjunction with this forme cylinder (08) is provided, and said transfer cylinder (14) operates in conjunction with the impression cylinder (16), wherein the forme cylinder (08) and/or the transfer cylinder (14) each have a position-controlled drive that can be controlled independently of the other and/or independently of a drive of the impression cylinder (16).

147. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) or another correcting element (07) is a servo mechanism for the circumferential adjustment of the forme cylinder (08).

148. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) or another correcting element (07) is a servo mechanism for the circumferential adjustment of at least one printing forme arranged on the forme cylinder.

149. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) or another correcting element (07) adjusts a phase position of a forme cylinder (08) relative to the phase position of an assigned impression cylinder (16).

150. Printing machine according to one of claims 1 through 5, characterized in that the correcting element (07) or another correcting element (07) adjusts a phase position of a forme cylinder (08) relative to the phase position of another forme cylinder (08).

151. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) controls a marking device designed to characterize the printing substrate, based upon the data provided by the optical detection device (11).

152. Printing machine according to claim 151, characterized in that the marking device is designed as an inkjet printer.

153. Printing machine according to claim 151, characterized in that the marking device is equipped with a laser.

154. Printing machine according to claim 151, characterized in that the marking device is designed as a printing device that prints using a typographic printing process.

155. Printing machine according to claim 151, characterized in that the marking device is designed as a notching device.

156. Printing machine according to one of claims 1 through 5, characterized in that the control device (12) controls a switch for changing the transport pathway of the printing substrate based upon the data provided by the optical detection device (11).

157. Printing machine according to claim 156, characterized in that the switch feeds a printed product identified by the control device (12) to be of good quality to a first delivery and a printed product identified to be of poor quality to a second delivery.

158. Printing machine according to one of claims 1 through 5, characterized in that the detection device (11) is arranged downstream from a dryer, through which the printing substrate passes once the ink has been applied.

159. Printing machine according to one of claims 1 through 5, characterized in that the optical detection device (11) is arranged on a guide roller upstream from a crosswise folding unit (22) and/or in front of a longitudinal fold former.

160. Printing machine according to claim 49, characterized in that at least one of the printing couples (01) is designed as an imprinter.

161. Printing machine according to claim 160, characterized in that the control device (12) receives a signal (p) that contains information as to which of the printing couples (01)

is involved in the relevant printing process and/or which printing couple (01) is removed from the relevant printing process.

162. Printing machine according to claim 161, characterized in that, based upon the signal (p), the control device (12) determines which machine element (08) allocated to one of the printing couples (01) is influencing the relevant produced quality of the printing by means of an actuation of its correcting element (07).

163. Printing machine according to claim 160, characterized in that a target value is assigned to each printing couple (01) that is designed as an imprinter, wherein the control device (12) determines the difference between the target value and the relevant detected actual value, in each case based upon the relevant imprinter that is involved in the printing.

164. Printing machine according to one of claims 1 through 5, characterized in that at least one ink guide roller or one ink guide cylinder is provided, each with a servo drive for implementing a radial lift of said roller or said cylinder.

165. Printing machine according to claim 164, characterized in that a control device that controls the servo drive adjusts said ink guide roller or said ink guide cylinder in its position relative to another adjacent ink guide roller or to another adjacent ink guide cylinder, based upon the production speed of the printing machine, or changes its setting.

166. Printing machine according to claim 164 or 165, characterized in that the control device (12) adjusts said ink guide roller or said ink guide cylinder in its position relative to another adjacent ink guide roller or to another adjacent ink guide cylinder, based upon the relevant produced quality of the printing established from data from the optical detection device (11), or changes its setting.

167. Printing machine according to claim 164, characterized in that the servo drive is designed as a roller socket for implementing the radial lift of the roller or the cylinder.

168. Printing machine according to claim 85, characterized in that the correcting element (07) or another correcting element (07) is designed as a roller socket for adjusting contact pressure.

169. Printing machine according to claim 167 or 168, characterized in that the roller socket has at least one remotely actuatable actuator.

170. Printing machine according to claim 167 or 168, characterized in that the roller socket acts externally on one of the ends of the assigned roller or the assigned cylinder.

171. Printing machine according to claim 167 or 168, characterized in that the roller socket is arranged in the interior of the roller or the cylinder.